

**METHOD AND SYSTEM FOR STORING AND DISPENSING  
ROLLED PAPER PRODUCTS**

5    **TECHNICAL FIELD**

        The present invention provides a method and system for efficiently storing and dispensing rolled paper products.

**BACKGROUND OF THE INVENTION**

10          For many years, since the advent of the use of disposable paper products, consumers have been faced with the problem storing the often bulky products. With the rise of warehouse-style shopping, many consumers purchase paper products in bulk in order to save money and reduce the frequency of shopping trips. Bulk packaging of paper products may include as many as twelve or more individually-packaged rolls of the paper product.  
15    Unfortunately, bulk packaging of paper products results in packages that are too large to store conveniently in many homes and businesses. The volume of space taken up by the many rolls of paper products makes a bulk purchase space-prohibitive despite a savings in price and time. As a result, consumers forgo reduced prices and distributors and bulk retailers lose business. Accordingly, consumers, distributors and bulk retailers have recognized a need for  
20    an inexpensive system and method for convenient storage and dispensing of paper products.

**SUMMARY OF THE INVENTION**

        One embodiment of the present invention comprises an enclosed rectangular collapsible container ("dispenser") for storing and dispensing one or more rolls of paper  
25    towels. The dispenser has dimensions appropriate for holding up to twelve horizontally-placed rolls of paper towels in two vertical stacks of up to six rolls each. The width of the dispenser is at least equal to the height of a standard roll of paper towels, the height of the dispenser is approximately six times the diameter of a standard roll of paper towels, and the depth of the dispenser is approximately two times the diameter of a standard roll of paper  
30    towels. A dispensing aperture is included proximal to the bottom of the front piece of the dispenser for manual extraction of the enclosed paper-towel rolls. The dispensing aperture has dimensions corresponding to the approximate height and approximate diameter of a horizontally-placed roll of paper towels. The dispensing aperture further contains a

projection cut out along the top edge large enough for a user to manually reach into the dispenser and extract a roll of paper towels. Removal of a paper towel roll from the dispensing aperture causes any paper towel rolls directly above the extracted paper towel roll to shift downward to the bottom of the dispenser, positioning a new roll of paper towels directly inside of the dispensing aperture for later removal from the dispenser.

Various alternate embodiments of the dispenser include a viewing aperture, placed on the front piece of the dispenser, for viewing the contents of the dispenser and a shaped bracket that extends upward from the back piece and that is flush with the dispenser for mounting of the dispenser to the top edge of a door. In various embodiments, the top and bottom pieces of the dispenser can both be opened for convenient loading of the dispenser with paper towel rolls from either end. When both the top and bottom pieces are simultaneously opened in various embodiments, the dispenser may be folded flat for efficient storage when the dispenser is not in use.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1A is a perspective view showing one embodiment of the rolled-paper-product dispenser.

Figure 1B is a perspective view showing one embodiment of the rolled-paper-product dispenser loaded with rolls of paper towels.

Figure 1C is a perspective view showing one embodiment of the rolled-paper-product dispenser mounted to a door.

Figures 2A and B are perspective views showing two alternate embodiments of the top piece of the rolled-paper-product dispenser.

Figures 3A and B are perspective views of several alternate embodiments of mounting brackets for the rolled-paper-product dispenser.

Figures 4A and B are perspective views showing two alternate embodiments of the bottom piece of the rolled-paper-product dispenser.

Figures 5A and B show two alternate embodiments of the rolled-paper-product dispenser folded flat.

## 5 DETAILED DESCRIPTION OF THE INVENTION

One embodiment of the present invention comprises a hanging, collapsible paper towel roll dispenser. Figure 1A is a perspective view of an empty paper-towel-roll dispenser ("dispenser"). The dispenser 102 is of a rectangular shape of approximate dimensions to hold a number of vertical stacks of horizontally-positioned rolls of paper towels. The dispenser  
10 102 comprises four vertical orthogonal pieces, a horizontal top piece 104, and a horizontal bottom piece 106. The vertical pieces include a front piece 108, a back piece 110 opposite to the front piece 108, and two side pieces 112 and 114. The top piece 104 opens to provide access into the interior of the dispenser 102 for loading the dispenser with rolls of paper towels. The top piece 104 and bottom piece 106 may be openable to allow the paper-towel-roll dispenser to be folded flat.  
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The front piece 108 of the paper towel roll dispenser 102 includes a dispensing aperture 116 for extracting paper towel rolls from the dispenser 102. The dispensing aperture 116 includes an extraction space 118 for manually reaching into the dispenser 102 to pull out a paper towel roll through the dispensing aperture 116. The front piece 108 of the dispenser  
20 102 further includes a viewing aperture 120 providing an opening for visually inspecting the contents of the dispenser 102. A mounting bracket 122 is attached to the back piece 106 of the dispenser 102. The mounting bracket 122 extends upward, flush with the back piece 110 of the dispenser 102 and provides a means for mounting the dispenser 102 to a door.

Figure 1B is a perspective view of one embodiment of the dispenser filled with paper  
25 towel rolls. The dimensions of the dispenser 102 provide a snug fit for up to twelve rolls of paper towels, such as paper towel roll 124. The paper towel rolls are positioned horizontally in two side-by-side vertical stacks 126 and 128 of up to six rolls of paper towels each with the height of each paper towel roll extending horizontally across, and parallel to, the front piece 108 of the dispenser 102.

30 In an alternative embodiment of the dispenser, not shown, the top piece is horizontal, as shown in Figures 1A and B. However, the front piece 108 of the dispenser 102 is longer than the back piece 110 of the dispenser 102, creating an angled bottom piece sloping down

from the back piece 110 to the front piece 108. The angled bottom piece allows gravity to pull the back stack 126 of paper towels forward to enable a paper-towel roll to be in direct relation to the dispensing aperture 116 when the front stack 128 of paper towels is empty. Figure 1C shows one embodiment of the dispenser mounted to a door by the mounting bracket.

Figures 2A and B are perspective views of two alternate embodiments of the top piece of the dispenser. The first embodiment, illustrated in Figure 2A, shows the top piece of the dispenser in an open position, providing access to the interior of the dispenser 102 for loading paper towel rolls. The top piece 104 is pivotably attached to the top edge of one of the vertical pieces, such as side piece 112. A pivotably attached top flap 202 extends along the edge of the top piece 104 opposite to the edge of the top piece 104 attached to the side piece 112. The top flap 202 includes two top insertion slits 204 and 206. The insertion slits 204 and 206 are cut out of the top flap 202 in proximity to the pivot between the top piece 104 and the top flap 202.

Two top stiffening flaps 208 and 210 are pivotably attached to the dispenser 102 along the top edges of two opposing vertical pieces, such as the front piece 108 and the back piece 110. The top stiffening flaps 208 and 210 have lengths of slightly less than the width of the vertical pieces to which the stiffening flaps 208 and 210 are attached, the front piece 108 and the back piece 110 respectively. The difference between the widths of vertical pieces 108 and 110 and the attached top stiffening flaps 208 and 210 create an open strip 212 perpendicularly abutting side piece 114. The width of the open strip 212 is approximately equal to the thickness of top flap 202.

Two top pivoting tabs 214 and 216 extend from the proximity of the top edge of the vertical piece opposite to the vertical piece attached to the top piece 104. Figure 2A shows the top piece 104 attached to side piece 112 and the pivoting tabs 214 and 216 extending from side piece 114. The pivoting tabs 214 and 216 comprise a base pivot 218 and 220, a middle pivot 222 and 224, and a leading edge 226 and 228. Note that the base pivots 218 and 220 and the middle pivots 222 and 224 may be perforated to provide a consistent fold. One or more grabbing apertures 230 and 232 are included along the top edge of the side piece 114, flanking the pivoting tabs 214 and 216.

Closing the top piece may be done in several orderly steps. First, the pivoting tabs 214 and 216 are pivoted outward from attached side piece 114, along the base pivot 218 and

220. Next, the top stiffening flaps 208 and 210 are folded inward as indicated by directional arrows 234 and 236. Each top stiffening flap 208 and 210 contains a tab avoidance aperture 238 and 240 respectively along the edge of the top stiffening flap 208 and 210 adjacent to the pivot tabs 214 and 216 when the stiffening flaps 208 and 210 are folded inward. The tab avoidance apertures 238 and 240 are of width at least equal to the width of the pivoting tabs 214 and 216 and are positioned such that, when the top stiffening flaps 208 and 210 are folded horizontally, the tab avoidance apertures 238 and 240 align with the pivoting tabs 214 and 216 respectively.

In a next step, the top piece 104 is folded inward as indicated by directional arrow 242. As the top piece 104 is brought to a horizontal position, the top flap 202 may be tucked inside of side piece 114 along open strip 212. Insertion slits 204 and 206 align with pivoting tabs 214 and 216 respectively when the top piece 104 is properly closed in a horizontal position. Once the top piece 104 is closed, the top piece 104 may be secured by manually pressing the leading edges 226 and 228 of the pivoting tabs 214 and 216 through the insertion slits 204 and 206 until the bottom half of the pivoting tabs 214 and 216 are flush with the side piece 114. Note that, when the top piece 104 is securely fastened, the pivoting tabs 214 and 216 are at approximately right angles, bending along the middle pivot 222 and 224. Also note that, when the top piece 104 is securely fastened, the top half of the pivoting tabs 214 and 216 are in a horizontal plane with the top stiffening flaps 208 and 210, inside of the tab avoidance apertures 238 and 240, providing a rigid plane underneath the top piece 104 to help maintain the rectangular shape of the dispenser 102.

Opening the top piece of the dispenser may be performed by reversing the above orderly steps for closing the top piece, beginning with manually reaching into the grabbing apertures 230 and 232 flanking the pivoting tabs 214 and 216 and applying an outward force to separate the leading edges 226 and 228 of the pivoting tabs 214 and 216 from the insertion slits 204 and 206, lifting up the top piece 104 in a motion opposite to directional arrow 242, then lifting the top stiffening flaps 208 and 210 in directions opposite to directional arrows 234 and 236.

In the embodiment shown in Figure 2A, the dispenser 102 is cut from a single sheet of pliable material, such as cardboard, with perforated vertical edges between the vertical pieces, such as the edge 244 between the vertical front piece 112 and the vertical side piece 114. The two edges of the original single sheet of cardboard are connected together as an

overlapping connecting flap 246 extending along a vertical edge of one of the vertical pieces of the dispenser 102. Figure 2A shows the connecting flap 246 between the vertical back piece 110 and the vertical side piece 112. The connecting flap 246 may be affixed to the vertical piece of the dispenser 102 in a number of different ways, such as running a bead of glue between the connecting flap 246 and the vertical piece of the dispenser 102.

The second embodiment, illustrated in Figure 2B, shows the top piece of the dispenser pivotably attached to the top edge of one of the vertical pieces of the dispenser, such as the back piece. The top piece 104 includes a tab 248 pivotably attached to one or more of the unattached edges of the top piece 104. Figure 2B shows a single tab 248 opposite to the pivoting edge of the top piece 104. The top piece 104, shown in an open position, may be manually brought to a closed position by mating tab 248 with a slit 250 on a flap 252, pivotably connected to the top edge of one of the vertical pieces of the dispenser 102, such as the front piece 108. The slit 250 is cut out of the flap 252 in proximity to the pivot between the top piece 104 and the flap 252. The direction of movement to close the top piece 104 is indicated by an arrow 254. When the top piece 104 is manually brought to a closed position, tab 248 slides into slit 250, fastening the top piece 104 to the flap 252.

Figures 3A and B show mounting brackets for one embodiment of the dispenser. Figure 3A shows a mounting bracket to mount the dispenser to a door. The mounting bracket ("bracket") 302 is a detachable bent strip comprising a series of flat sections shaped to connect the back piece 110 of the dispenser 102 to the front face of a door (as shown in Figure 1C). The bracket 302 extends from an inner terminus 304, inside of the dispenser 102, to an outer terminus 306 extending along the back face of a door. The bracket 302 must be made from a material strong enough to hold the weight of the dispenser 102 when fully loaded with rolls of paper products.

An inner section 308 extends from the inner terminus 304 inside the dispenser 102, through a mounting slit 310 in the back piece 110 of the dispenser 102, to a resting edge 312 flush with the exterior of the back piece 110. From the resting edge 312, the bracket 302 bends upward along a first vertical section 314 running approximately parallel to, and flush with, the back piece 110 of the dispenser 102. Note that the angle 316 between the inner section 308 and the first vertical section 314 is not greater than ninety degrees to prevent the dispenser 102 from losing contact with the resting edge 312 when the dispenser 102 is in an upright position. The first vertical section 314 extends upward beyond the plane of the

horizontal top piece 104 of the dispenser 102. The bracket 302 bends approximately ninety degrees away from the dispenser 102 extending along a horizontal section 316 of the bracket 302 before bending approximately ninety degrees for a second time, extending down a second vertical section 318 in a direction parallel and opposite to the first vertical section 314, to the outer terminus 306.

The first vertical section 314 and the second vertical section 318 are spaced apart to fit snugly along the two main faces of a standard two-inch-thick door (about one and three-fourths inches). When the dispenser 102 is properly mounted to a door, as shown in Figure 1C, the first vertical section 314 is sandwiched between the back piece 110 of the dispenser 102 and the front face of the door. The first vertical section 314 extends above the plane of the horizontal top piece 104 of the dispenser 102 so that when the dispenser 102 is mounted to a door, the top of the dispenser 102 is below the level of the top of the door to allow unobstructed closure of the dispenser-laden door and to place the dispensing aperture (116 in Figure 1A) at a convenient height for the average user to extract paper towels from the dispenser 102. Additionally, a spacer 320 may be used to promote a snug fit between the bracket 302 and a door of a width less than that of a standard door. As shown by directional arrow 322, the spacer 320 may be affixed to the inside of the second vertical section 318 to mimic the effect of a door of greater width between the first vertical section 314 and the second vertical section 318.

Figure 3B shows an alternative embodiment of the mounting bracket for mounting the dispenser to a wall or other vertical surface. The mounting bracket 324 is a detachable bent strip of width similar to mounting bracket 302, described in Figure 3A. Mounting bracket 324 comprises an inner section 326 and a vertical section 328. The vertical section 328 includes a mounting aperture 330 for passing a nail, tack, push pin, hook or similar tool through the mounting aperture 330 and into a mounting surface such as wood or wall materials. The mounting bracket 324 passes through the mounting slit 332 in the back piece 110 of the dispenser as described in Figure 3A.

Figures 4A and B are perspective views of two alternate embodiments of the bottom piece of the dispenser. Both of the illustrated embodiments open to provide access to the interior of the dispenser for loading rolls of paper towels. The first embodiment, illustrated in Figure 4A, employs a similar system as the first embodiment of the top piece of the dispenser (shown in Figure 2A). The bottom piece 106 is pivotably attached to the bottom edge of one

of the vertical pieces, such as side piece 112. A pivotably attached bottom flap 402 extends along the edge of the bottom piece 106 opposite to the edge of the bottom piece 106 attached to the side piece 112. The bottom flap 402 includes two bottom insertion slits 404 and 406. The insertion slits 404 and 406 are cut out of the bottom flap 402 in proximity to the pivot  
5 between the bottom piece 106 and the bottom flap 402.

A stiffening flap 408 is pivotably attached to the dispenser 102 along the bottom edge of one of the vertical pieces, such as back piece 110, adjacent to the vertical piece pivotably attaching the bottom piece 106. The bottom stiffening flap 408 has a length of slightly less than the width of the vertical piece to which the stiffening flap 408 is attached, shown in  
10 Figure 4A as the back piece 110. The difference between the width of back piece 110 and the attached stiffening flap 408 create an open strip 410 perpendicularly butting side piece 114. The width of the open strip 410 is approximately equal to the thickness of the bottom flap 402.

Two bottom pivoting tabs 412 and 414 extend from the proximity of the bottom edge  
15 of the vertical piece opposite to the vertical piece attached to the bottom piece 106. Figure 4A shows the bottom piece 106 attached to side piece 112 and the pivoting tabs 412 and 414 extending from side piece 114. The pivoting tabs 412 and 414 comprise a base pivot 416 and 418, a middle pivot 420 and 422, and a leading edge 424 and 426. Note that the base pivots 416 and 418 and the middle pivots 420 and 422 may be perforated to provide a consistent  
20 fold. One or more grabbing apertures 428 and 430 are included along the bottom edge of the side piece 114, flanking the pivoting tabs 412 and 414.

Closing the bottom piece may be done in several orderly steps. First, the pivoting tabs 412 and 414 are pivoted outward from attached side piece 114, along the base pivot 416 and 418. Next, the bottom stiffening flap 408 is folded inward as indicated by directional  
25 arrow 432. The bottom stiffening flap 408 contains two tab avoidance apertures 434 and 436 along the edge of the stiffening flap 408 adjacent to the pivot tabs 412 and 414 when the stiffening flap 408 is folded inward. The tab avoidance apertures 434 and 436 are of width at least equal to the width of the pivoting tabs 412 and 414 and are positioned such that, when the bottom stiffening flap 408 is folded horizontally, the tab avoidance apertures 434 and 436  
30 align with the pivoting tabs 412 and 414 respectively.

In the next step, the bottom piece 106 is folded inward as indicated by directional arrow 438. As the bottom piece 106 is brought to a horizontal position, the bottom flap 402



may be tucked inside of side piece 114 along open strip 410. Insertion slits 404 and 406 align with pivoting tabs 412 and 414 respectively when the bottom piece 106 is properly closed in a horizontal position. Once the bottom piece 106 is closed, the bottom piece 106 may be secured by manually pressing the leading edges 424 and 426 of the pivoting tabs 412 and 416 through the insertion slits 404 and 406 until the bottom half of the pivoting tabs 412 and 414 are flush with the side piece 114. Note that, when the bottom piece 106 is securely fastened, the pivoting tabs 412 and 414 are at approximately right angles, bending along the middle pivot 420 and 422. Also note that, when the bottom piece 106 is securely fastened, the bottom half of the pivoting tabs 412 and 414 are in a horizontal plane with the bottom stiffening flap 408, inside of the tab avoidance apertures 434 and 436, providing a rigid plane underneath the bottom piece 106 to help maintain the rectangular shape of the dispenser 102.

Opening the bottom piece of the dispenser may be performed by reversing the above orderly steps for closing the bottom piece, beginning with manually reaching into the grabbing apertures 228 and 430 flanking the pivoting tabs 412 and 414 and applying an outward force to separate the leading edges 424 and 426 of the pivoting tabs 412 and 414 from the insertion slits 404 and 406, lifting up the bottom piece 106 in a motion opposite to directional arrow 432, and then lifting the bottom stiffening flap 408 in a direction opposite to directional arrow 438.

The second embodiment, illustrated in Figure 4B, shows the bottom piece of the dispenser pivotably attached to the bottom edge of one of the vertical pieces of the dispenser, such as side piece. The bottom piece 106 includes one or more pivotably attached bottom flaps 440 extending from one or more of the unattached edges of the bottom piece 106. Figure 4 shows a single bottom flap 440 positioned opposite to the pivoting edge of the bottom piece 106. The inside of the bottom flap 440 contains a strip comprising one side of a hook and loop fastener 442 affixed to the bottom flap 440. The opposing strip of the hook and loop fastener 444 is affixed in proximity to the bottom edge of the exterior of the vertical side piece 114 of the dispenser 102. The directional arrow 446 illustrates the movement of manually closing the bottom piece 106 of the dispenser 102 by mating the opposing strips of the hook and loop fastener 442 and 444.

Alternate embodiments of the dispenser 102 may be fabricated from any number of materials, both pliable and non-pliable, including corrugated cardboard or other heavy paper material, plastic, Coroplast™, metal, wood, sturdy fabric, and laminate material. If a pliable

material, such as cardboard, is used, then simultaneously opening up the top piece and bottom piece of the dispenser 102 allows the dispenser 102 to fold flat for convenient storage of the dispenser 102 when not in use. Figure 5A shows the first embodiment of the dispenser folded flat. Figure 5B shows the second embodiment of the dispenser folded flat. Note that the detachable mounting bracket and spacer are neither shown in Figure 5A nor B.

Although the present invention has been described in terms of a two particular embodiments, it is not intended that the invention be limited to these embodiments. Modifications within the spirit of the invention will be apparent to those skilled in the art. For example, many types of component configurations and methods of attaching and mounting components to various assemblies different from those shown in the figures and described in the above text may be employed. Alternate embodiments of the paper product roll dispenser may be sized to accommodate different numbers of paper towel rolls, and may be sized and configured to store and dispense other types of rolled paper products, such as shop towels and toilet paper. The arrangement of the various apertures can be changed within a particular piece of the dispenser or can be moved to alternate pieces of the dispenser altogether. For instance, the viewing aperture could be moved to one or more of the side pieces of the dispenser, the mounting aperture could be lowered or raised on the back piece of the dispenser or the mounting aperture could be placed on one of the side pieces of the dispenser. Several different mounting brackets have been described. Alternately, the dispenser could include one or more mounting apertures instead of employing a mounting bracket, or not include a means for mounting at all. Several different methods of fastening the top and bottom pieces of the dispenser were described. Either type of fastening could be used for either piece. Other types of fasteners may be used as well, such as snaps, magnets, ties, cords, rivets, folding flaps, post and lanyard combinations, draw strings or elastic cords. Moreover, the bottom piece of the dispenser could be sealed permanently or semi-permanently through use of an adhesive such as glue or tape. Further, a top piece need not be included if the material used to make the dispenser is stiff enough to hold shape upon loading. The stiffening flaps employed in the first embodiment of the dispenser could be in the single flap or double flap form for either or both the top and bottom piece. Also, the number of pivoting tabs used in the first embodiment of the dispenser could be varied for either the top or bottom piece.

The foregoing detailed description, for purposes of explanation, used specific nomenclature to provide a thorough understanding of the invention. However, it will be apparent to one skilled in the art that the specific details are not required in order to practice the invention. Thus, the foregoing descriptions of specific embodiments of the present invention are presented for purposes of illustration and description: they are not intended to be exhausted or to limit the invention to the precise forms disclosed. Obviously many modifications and variation are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical application and to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated.